Executive Summary

Fish consumption advisories vary among eastern coastal states. These advisories are based upon PCB levels found in both striped bass and bluefish. Although specific advice varies among the coastal states for these species, polychlorinated biphenyls (PCBs) are consistently cited as a major risk driver leading to these advisories The advisories vary from state to state due to differences in analytical methods, toxicological basis, risk management approaches, or actual differences in measured PCB levels. The differences in consumption advisories can be confusing for the public who may be receiving conflicting messages, i.e., if two states issue different advisories for the same water body as in Long Island Sound. The Eastern Coastal Striped Bass and Bluefish Consumption Advisory Workgroup was formed to explore the feasibility of developing a consistent advisory for migratory marine striped bass and bluefish. This Workgroup did not address subpopulations of landlocked striped bass or of non-migratory populations of striped bass.

The objective of the Workgroup was to analyze the feasibility of a consistent advisory based on PCB contaminants for all of the Atlantic coastal states. Where consistent advisories are not possible, the report provides a rationale for this conclusion. Workgroup members also compiled and described existing striped bass and bluefish data from the Atlantic coastal states and the biological and management aspects of striped bass and bluefish that impact decisions about coastal consumption advice. Lastly, they reviewed parameters used in issuing state fish consumption advisories across the Atlantic coastal states and the toxicological basis used to develop this advice.

Summaries of Subworkgroups

The Data Subworkgroup compiled available PCB data in striped bass and bluefish from State and Federal sources. These data were used to describe the levels of PCBs in these species along the Atlantic Coast, as well as descriptions of the fish collected (e.g., size and weight), analytical methods, and other information (e.g., percent lipids). The information compiled indicates that data robustness by state varies considerably. Limited data are available for bluefish coastwide with only seven states reporting results. Moderate levels of striped bass data are available for ten coastal states, with extensive data available for New York waters. The range of reported mean striped bass PCB levels was 2,110 ppb (NY, Hudson River) down to the detection limit of 100 ppb (GA). The range of reported mean bluefish PCB levels was 904 ppb (NY, Hudson River) to < 13 ppb (NC). Direct comparisons of interstate data are difficult based on the observed variability and differences in collection methods (e.g., temporal and size differences). These factors need to be considered when interpreting the data including regional observations. The data does indicate that PCB concentrations have declined in striped bass and bluefish since the 1980's. Secondary objectives included analyzing the feasibility of a common database and analytical methodology for PCB concentrations in striped bass and bluefish.

The Biology Subworkgroup evaluated the life histories, migratory routes, dietary habits and recreational harvest and regulations associated with striped bass and bluefish. Striped bass have several breeding locations along the coast, with adult males and females migrating north during the summer and overwintering off North Carolina/Virginia. The major breeding locations include the Hudson River, the Delaware Estuary, the Chesapeake Bay and Albermarle Sound/Roanoke River. Southern striped bass (South Carolina to Florida) are generally riverine and do not migrate along the coast. Generally the minimum lengths for recreational harvest are such that it is the migratory females that can be kept. Striped bass diet is dominated by available prey at any particular location and the importance of the recreational fishery (relative to other species) increases north along the coast. From an absolute perspective, the numbers of striped bass recreationally harvested are greatest in the Mid Atlantic and southern New England states. Bluefish are generally considered one population along the Atlantic Coast. Like striped bass, they are opportunistic feeders and their diet is dominated by local resources. Their range stretches from Maine to Florida, but as a recreational fishery, they are not important in Georgia and South Carolina.

The Toxicology Workgroup compiled data on the toxicological basis behind developing fish consumption advisories for both species in the Atlantic coastal states. The current bases for PCB fish advisories include the EPA Reference Doses (RfDs) for commercial mixtures, the EPA cancer slope factor, the FDA tolerance level, and/or the Health Protective Value from the Great Lakes Protocol. The non-cancer toxicity values are out of date. Data from longitudinal prospective epidemiological studies published in the last decade or so documented adverse effects on neuropsychological function as a result of *in utero* and childhood exposure to PCBs at environmental levels. Studies in Michigan, the Netherlands, Germany, and New York documented decreased IQ, attentional problems, deficits in memory and language processing, and changes in social behavior and activity. Exposures in mothers in the study in Oswego, New York, are estimated to be comparable to those in the general U.S. population. Robust deficits were observed in multiple behavioral domains in that study. PCBs have a long half-life in the human body. Consequently, exposure across the lifespan, including during childhood, determines transgenerational exposure. It is therefore recommended that any advisory for striped bass and bluefish not result in an appreciable increase in the body burden of PCBs for girls and women. For males and women without reproductive potential, advice should be based on the cancer slope factor.

The Advisory Subworkgroup compiled consumption advisory data on all of the Atlantic coastal states for bluefish and striped bass. The current health advisories produced by the states for consumption of striped and bluefish are similar. Beyond the basic similarity, however, there are significant differences in the physical locations of advisories, how the human populations are defined, toxicity assessment sources used, and parameter choice in the defining human exposures to chemical residues in fish (e.g., meal size, exposure duration, etc.). The similarities and differences in these variables and the rational behind them are discussed in the advisory chapter.

Recommendations

The Workgroup concluded that across the Atlantic coastal states, there appears to be significant variety and divergence in consumption advice given for bluefish and striped bass. However, there are also many similarities and areas where consensus can be built. Despite differences in how advisories are derived under various risk assessment methodologies, most states are not that different on how they view PCB toxicity and exposure assessment. For this reason, it seems feasible for many of the Atlantic coast states to adjust their advice to be more consistent.

It is recommended that participating states devise common or more consistent advisories as a risk management decision rather than focus on modifying risk assessment methodologies. This in particular may make sense given the out of date status on health benchmarks identified by the toxicology workgroup and the fact that, even given sparseness of data, it would appear that no other protein source has similar levels of PCBs. Striped bass in South Carolina to Florida are generally riverine and do not migrate, hence any advice should be developed by local jurisdictions based on local data. While there is significantly less data for bluefish, and the state data is more variable, older data show PCB contamination along the coast in bluefish and risk communication is considerably simplified if the bluefish advice is consistent with the striped bass advice. Hence the workgroup proposes the following advice as a consideration as a starting point for further discussion.

Table 1: Proposed Advice for Striped Bass and Bluefish along Atlantic Coast States

	women who may get pregnant and young women and girls.	men, boys, adult women who will not get pregnant
Striped Bass		
Coastal Marine Waters from Maine to North Carolina	No Consumption	1 meal per month
Coastal Marine Waters from South Carolina to Florida	No Need for Consistent Advice	
Bluefish		
Coastal Marine Waters from Maine to Florida	No Consumption	1 meal per month
Coastal Marine Waters from Maryland to Florida	Not possible to develop advice without more data	

An issue of further discussion among states if and when they develop consistent advice would be whether or not to put young boys in the sensitive population and whether to identify less stringent advice for smaller bluefish with documented lower levels of PCBs.

The states involved in drafting this report will reach a consensus about how to implement the recommendations in this report. It is hoped that a more consistent advisory can be developed, or at least the existing advisories can be brought closer together. At the conclusion of these discussions, there will be a coordinated risk communication effort to educate the fish consuming public about new and existing advisories for striped bass and bluefish.